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Dropout from psychological therapies for post-traumatic stress disorder (PTSD) in adults: systematic review and meta-analysis

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Abstract

Background: Despite the established efficacy of psychological therapies for post-traumatic stress disorder (PTSD) there has been little systematic exploration of dropout rates.

Objective: To ascertain rates of dropout across different modalities of psychological therapy for PTSD and to explore potential sources of heterogeneity.

Method: A systematic review of dropout rates from randomised controlled trials (RCTs) of psychological therapies was conducted. The pooled rate of dropout from psychological therapies was estimated and reasons for heterogeneity explored using meta-regression.

Results: The pooled rate of dropout from RCTs of psychological therapies for PTSD was 16% (95% CI 14% - 18%). There was evidence of substantial heterogeneity across studies. We found evidence that psychological therapies with a trauma-focus were significantly associated with greater dropout. There was no evidence of greater dropout from therapies delivered in a group format; from studies that recruited participants from clinical services rather than via advertisements; that included only military personnel/veterans; that were limited to participants traumatised by sexual traumas; that included a higher proportion of female participants; or from studies with a lower proportion of participants who were University educated.

Conclusions: Dropout rates from recommended psychological therapies for PTSD are high and this appears to be particularly true of interventions with a trauma focus. There is a need to further explore reasons for dropout and to look at ways of increasing treatment retention.

Keywords: Post-traumatic stress disorder; trauma; psychological; therapy; dropout; review

Introduction

Post-Traumatic Stress Disorder (PTSD) is a debilitating psychiatric disorder with a lifetime prevalence of approximately 8% [1]. In addition to the requirement of exposure to a major traumatic event, the diagnostic criteria for PTSD specify the presence of symptoms including re-experiencing the traumatic event; avoiding reminders of the trauma; alterations in arousal and reactivity; and changes in cognition and mood [2].

Despite decades of research converging on support for the efficacy of psychological therapy for PTSD [3-5], we know remarkably little regarding dropout from these interventions [6-9]. Many psychological therapies have been applied to the treatment of PTSD and these have fundamentally different components and proposed active ingredients [10]. It follows that these variations may have some influence on differential rates of dropout. Despite this likelihood, there have been few attempts to systematically determine dropout rates from the psychological therapies commonly applied to the treatment of PTSD.

Among the evidence-based therapies for PTSD, a major distinction can be drawn between the therapies that focus on the traumatic event and those that aim to reduce traumatic stress symptoms without directly targeting the trauma memory or related thoughts, with the strongest evidence for the effect of those with a trauma-focus [3-5]. Trauma-focused Cognitive Behaviour Therapy (CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) are currently recommended as first line interventions for PTSD [11-13]. These trauma-focused psychological therapies rely on confrontation of traumatic images, which can be difficult to tolerate and may result in the potential for greater dropout [14, 15]. Psychological therapies omitting a role for trauma-focused work may be more tolerable, potentially leading to better retention. However, there is evidence that the absence of a trauma-focus results in poorer outcomes [3-5].

The issue of treatment tolerability and symptom exacerbation resulting from trauma-focused psychological therapies has been one of contention in the literature [14, 16, 17]. It is uncertain whether dropout rates vary as a function of treatment modality or whether those with a trauma-focus are associated with poorer retention. To date, a small number of meta-analyses have compared drop-out rates across different modalities of psychological therapy for PTSD [4, 17-19]. One of these studies reported no differences between therapies with and without exposure-work, however the review is now dated and includes a far smaller number of studies than currently available [17]. Another review reported a trend towards greater dropout from exposure based treatment, but did not analyse this statistically [4]. A more recent review reported that dropout was not associated with trauma-focus, however studies comparing trauma-focused CBT to waitlist or usual care control groups were excluded, restricting the review to 42 studies [18]. A more recent review found no difference in dropout rates from therapies that included exposure work in comparison to those that did not, but the review only included twenty studies of US military veterans [19].

The aim of the current review was to ascertain rates of dropout across different modalities of psychological therapy and to determine whether some psychological therapies (especially those with a trauma-focus) were associated with higher rates of dropout than others. Since there is no agreed definition of dropout, we took the number of participants that had left the study at the point of post-treatment assessment as a proxy-indicator of dropout in order to allow the inclusion of data from a maximal number of studies. We also aimed to explore potential sources of heterogeneity among the included studies. Our overarching goal was to contribute to a refined understanding of dropout from psychological therapies for PTSD that will inform the development of treatment protocols that maximise retention.

Method

Selection Criteria

Data on drop-out was extracted from studies that had been identified for a review of the efficacy of psychological therapies for adults with PTSD, which was undertaken as part of an update of the International Society for Traumatic Stress Studies (ISTSS) Treatment Guidelines [12]. Both reviews had the same inclusion criteria. RCTs of any defined psychological therapy aimed at the reduction of PTSD-symptoms in comparison with a control group (e.g. usual care / waiting list); other psychological therapy; or psychosocial intervention (e.g. psychoeducation / relaxation training), were included. At least 70% of study participants were required to be diagnosed with PTSD with a duration of three-months or more, according to DSM or ICD criteria determined by clinician diagnosis or an established diagnostic interview. This review considered studies of adults aged 18 or over, only. There were no restrictions based on symptom-severity or trauma-type. The diagnosis of PTSD was required to be primary and studies of comorbid PTSD and substance use disorder were excluded, but there were no other restrictions based on co-morbidity. Studies were only included if they reported data on the number of participants that had dropped out of the study by the point of post-treatment assessment. If multiple studies reported data on the same participants, dropout data was only included once. We also excluded RCTs of single-session interventions.

Search Strategy

A search was conducted by the Cochrane Collaboration, which updated a previously published Cochrane review with the same inclusion criteria, which was published in 2013 [3]. The updated search aimed to identify all RCTs related to the prevention and treatment of PTSD, published from January 2008 to the 31st May 2018, using the search terms PTSD or posttrauma* or post-trauma* or "post trauma*" or "combat disorder*" or "stress disorder*". The searches included results from PubMed, PsycINFO, Embase and the Cochrane database of randomised trials. This produced a group of papers related to the psychological treatment of PTSD in adults. We checked reference lists of the

included studies. We searched the World Health Organization's, and the US National Institutes of Health's trials portals to identify additional unpublished or ongoing studies. We contacted experts in the field with the aim of identifying unpublished studies and studies that were in submission. A complementary search of the Published International Literature on Traumatic Stress (PILOTS) was also conducted.

Data Extraction

Study characteristics and dropout data were extracted by two reviewers independently and in duplicate, using a form that had been pre-piloted. Since there is no agreed definition of dropout, taking the number of participants that had left the study at the point of post-treatment assessment allowed the inclusion of data from a maximal number of studies. Study authors were contacted to obtain missing data. Therapy classifications were agreed with the ISTSS treatment guidelines committee and posted on the ISTSS website to allow comment from the membership. Reasons for dropout and adverse events were not universally available or consistently reported by studies and it was not therefore possible to extract or meta-analyse this data.

Risk of Bias Assessment

All included studies were assessed for risk of bias at study level, using Cochrane criteria [20]. This included: (1) sequence allocation for randomisation (the methods used for randomly assigning participants to the treatment arms and the extent to which this was truly random); (2) allocation concealment (whether or not participants or personnel were able to foresee allocation to a specific group); (3) assessor blinding (whether the assessor was aware of group allocation); (4) incomplete outcome data (whether missing outcome data was handled appropriately); (5) selective outcome reporting (whether reported outcomes matched with those that were pre-specified); and (6) any other notable threats to validity (for example, premature termination of the study). Two researchers

independently assessed each study and any conflicts were discussed with a third researcher with the aim of reaching a unanimous decision.

Data Synthesis

Meta-analyses of proportion were conducted using the *metaprop* command in STATA version 13.1 [21]. The *metaprop* command pools proportions and uses the score statistic and the exact binomial method to compute 95% confidence intervals [22]. Data were pooled across all active psychological therapies. Sub-group analyses were also conducted to determine the dropout rate for each psychological therapy. A random effects model was chosen due to the heterogeneity across studies in terms of the inclusion and exclusion criteria of the studies; the populations from which the samples were drawn; the nature and duration of therapy; the predominant trauma type; and the mean age of participants.

Heterogeneity was assessed using both the I^2 statistic (which indicates the proportion of the variance that is due to heterogeneity [23]) and visual inspection of the forest plots. To explore potential sources of heterogeneity, meta-regression was performed using the *metareg* function of STATA version 13.1 [21]. Meta-regression assesses the association between study-level variables and the effect size [22]. It was hypothesised that a number of study-level variables would result in higher rates of drop-out, these being: therapies having a trauma-focus (due to the possibility of these therapies being difficult for some participants to tolerate); therapies being delivered in a group-format (since drop out from group therapies has been found to be greater than from therapies delivered on an individual basis [18]); recruitment from clinical services rather than through advertisements (due to the likelihood of more severe symptoms and a possible tendency for these participants to be less motivated to engage in treatment); whether or not the participants were selected from military/veteran populations (due a greater likelihood of complex or severe PTSD); whether the trauma experienced by participants was sexual (due to the possibility of therapy being more difficult to tolerate); and the percentage of participants who were University educated (due to the possibility

that more educated participants are better able to grasp the concepts involved in therapy). To explore the possibility of publication bias, we constructed a funnel plot using data on dropout from all active therapy groups.

Results

The original Cochrane review included 70 RCTs. The update search identified 5500 potentially eligible studies published since 2008. Abstracts were reviewed and full text copies obtained for 203 potentially relevant studies. Forty-four new RCTs met inclusion criteria for the review of efficacy that informed the ISTSS treatment guidelines [12], which resulted in a total of 114 RCTs that reported sufficient data on efficacy for inclusion in that review. Forty-six of the identified studies met the eligibility criteria and reported data on dropout, resulting in 115 studies for inclusion in this review. Figure 1 presents a flow diagram for study selection.

[FIGURE 1 HERE]

Study Characteristics

Study characteristics are summarised in table 1. Twenty-eight defined psychological therapies were evaluated. Eight of these were broadly categorized as CBT with a Trauma Focus (CBT-T) delivered on an individual basis: Brief Eclectic Psychotherapy (BEP); Cognitive Processing Therapy (CPT); Cognitive Therapy (CT); Narrative Exposure Therapy (NET); Prolonged Exposure (PE); Reconsolidation of Traumatic Memories (RTM); Virtual Reality Exposure Therapy (VRE) and CBT-T (not based on a specific model). Thirteen other therapies delivered to individuals were evaluated: EMDR; CBT without a Trauma Focus; Present Centred Therapy (PCT); Supportive Counselling; Written Exposure Therapy; Observed and Experiential Integration (OEI); Interpersonal Psychotherapy; Psychodynamic Psychotherapy; REM Desensitisation; Emotional Freedom Technique (EFT); Dialogical Exposure Therapy (DET); Internet-based CBT; and Relaxation Training. There were six different types of group

therapy: Group CBT-T; Group Present Centred Therapy (PCT); Group and Individual CBT-T; Group Stabilising Treatment; Group Interpersonal Therapy; Group Supportive Counselling. There were also RCTs of couples CBT-T. There were six types of control group: psychoeducation; couples psychoeducation; internet-based psychoeducation; waitlist; treatment as usual; and minimal attention/symptom monitoring.

The number of randomised participants ranged from 10 to 360. Studies were conducted in Australia (9), Canada (2), China (2), Denmark (1), Germany (5), Iran (2), Israel (1), Italy (2), Japan (1), the Netherlands (5), Norway (1), Portugal (1), Romania (1), Rwanda (1), Spain (1), Sweden (3), Switzerland (1), Thailand (1), Turkey/Syria (1), Uganda (2), UK (10) and USA (62). Participants were traumatised by military trauma (27 studies), sexual assault or rape (11 studies), war/persecution (4 studies), road traffic accidents (6 studies), earthquakes (2 studies), childhood abuse (3 studies), political detainment (1 study), terrorism (2 studies), physical assault (2 studies), domestic abuse (4 studies), medical diagnoses/emergencies (4 studies), genocide (1 study) and organised violence (3 studies). The remainder included individuals traumatised by various different traumatic events. There were 27 studies of females only and 10 of only males; the percentage of females in the remaining studies ranged from 1.75% to 96%. The percentage with a University education ranged from 4% to 90%.

Risk of Bias

Risk of bias assessments for the included studies are summarised in table 2. Fifty-two studies reported a method of sequence allocation judged to pose a "low" risk of bias; five reported a method with a "high" risk of bias; the remainder reported insufficient details and were, therefore, rated as "unclear". Forty-one studies reported methods of allocation concealment representing a "low" risk of bias; two a method with a "high" risk of bias; with the remainder rated as "unclear". The outcome assessor was aware of the participant's allocation in 11 of the included studies; it was unclear whether the outcome assessor was aware of group allocation in 20 studies; with the remainder using blind-raters or self-report questionnaires delivered in a way that could not be influenced by members of the

research team. Twenty-three studies were judged as posing a "high" risk of bias in terms of incomplete outcome data; 79 studies were felt to have dealt with dropouts appropriately ("low" risk of bias); it was unclear in the remaining studies. The majority of studies failed to reference a published protocol, resulting in an 'unclear' risk of selective reporting for 75 studies; risk of bias was judged as "high" in five studies and low in the remainder. Seventy of the included studies presented a "high" risk of bias in other areas, for example, in relation to sample size, baseline imbalances between groups, or other methodological shortfalls. We could not rule out potential researcher allegiance, since treatment originators were involved in the evaluation of their own intervention in many of the included studies.

[TABLE 2 HERE]

Dropout

Across the different modalities of psychological therapy, dropout rates from individual studies ranged from 0%-65%. The pooled dropout rate from psychological therapies for PTSD was 16% (95% CI 14 – 18; $k = 116$) with substantial heterogeneity across studies ($I^2 = 77.3\%$). The dropout rate for each modality of psychological therapy is presented in table 3. The heterogeneity in dropout rates indicates differences that may be predicted by the variables entered into meta-regression.

[TABLE 3 HERE]

Meta-regression

We found evidence that psychological therapies with a trauma-focus were significantly associated with greater dropout ($\beta = 0.069$; CI 0.011- 0.127; $P = 0.021$; dropout rate of 18% (95% CI 15-21%) from those with a trauma focus versus 14% (95% CI 10-18%) from those without a trauma focus). There was no evidence of greater dropout from therapies delivered in a group format; from studies that recruited participants from clinical services rather than via advertisements; that included only

military personnel/veterans; that included only participants traumatised by sexual traumas; from studies with a higher proportion of female participants; or from studies with a lower proportion of participants who were University educated .

[TABLE 4 HERE]

Publication Bias

A funnel plot, which was constructed using data on dropout from all active therapy groups, did not show evidence of publication bias.

[FIGURE 2 HERE]

Discussion

Main findings

The pooled dropout rate from psychological therapies for PTSD was 16% (95% CI 14-18%). This is of a similar magnitude to a previous meta-analysis of 42 studies, which found an average dropout rate of 18% [18] using the definition of dropout given by the included studies. This is also similar to the dropout rate of 17.5% obtained from a meta-analysis of dropout from RCTs of psychotherapy for depression [24] that defined dropout as unexpected attrition among individuals who were randomized to a treatment but failed to complete it. It was considerably lower than the pooled dropout rate of 36% found by a more recent review of twenty studies of US military veterans [19]. This was in comparison to a pooled dropout rate from studies of veterans/military personnel in this review of 18% (95% CI 15-22%). This is likely to reflect the fact that the previous review included a variety of different study designs including naturalistic studies and used the definition of dropout given by the authors of individual studies.

There was no evidence of greater dropout from therapies delivered in a group format. This contradicts the findings of earlier reviews that found group delivery to be associated with a significant increase in dropout [18, 19]. This may be the result of more recent studies evaluating interventions

that have been optimised to increase retention. There was also no evidence of significantly greater dropout from studies that recruited participants from clinical services rather than via advertisements; that included only military personnel/veterans; that included only participants traumatised by sexual traumas; that included only female participants; and from studies with a lower proportion of participants who were University educated. Research looking at factors associated with dropout have yielded inconsistent findings [9, 25, 26]. Although the findings of the current review contradict some previous studies; they are in agreement with others. Inconsistencies may be the result of difference in study type and design; the types of interventions of interest and the degree to which they are protocolised; or may vary according to the populations of interest.

We found evidence that psychological therapies with a trauma-focus were significantly associated with greater dropout. This challenges the findings of previous, far smaller, meta-analyses, which found no significant differences in dropout rates from therapies with and without a trauma-focus [17, 19]. However, one of these studies found a significant difference between PCT (a non-trauma focused intervention) and a group of therapies that had a trauma-focus [18]. Our findings may be a result of the accumulated data available from a larger number of studies. Although there are many reasons for dropout from psychological therapies, this finding suggests that difficulties tolerating trauma-focused treatment may be one of these. Adverse events such as the prolonged exacerbation of existing symptoms (for example, an increased frequency of unwanted thoughts or nightmares) or the occurrence of new symptoms (for example anger or self-blame) may lead to dropout, yet there is a surprising scarcity of research exploring the issue [27]. Psychological therapy is traditionally perceived as safe, presenting a low risk of unwanted effects [28]. In reality, the estimated rate of reported side effects is between 3% and 15%, which is of a similar magnitude to that reported for pharmacotherapy [29]. However, it is often difficult to draw a distinction between adverse events and time-limited negative experiences inherent to the process of some psychological therapies. This includes the experience of distress provocation, which is inevitable in the process of trauma-focused work.

A survey of psychologists' attitudes to trauma focused intervention found that concerns about tolerability and dropout were among the main reasons that psychologists did not use trauma focused intervention, despite the compelling evidence supporting its use [30]. However, only a small number of studies have acknowledged or explored adverse events such as symptom worsening or its influence on dropout in relation to trauma focused therapy. This is surprising, given that symptom exacerbation has long since been documented in the treatment of PTSD [31, 32]. It also limits our ability to judge how well various therapies were tolerated by PTSD sufferers. An RCT of imagery rehearsal therapy for trauma-related nightmares found that all four participants who actively withdrew from the treatment group had experienced increased negative imagery effects, suggesting a direct relationship between an inability to tolerate the treatment and subsequent dropout [33, 34]. Conversely, a study of 76 individuals found that only 9-21% of participants showed reliable symptom exacerbation, and these individuals were no more likely to drop out of treatment prematurely [35]. Similarly, an RCT comparing cognitive therapy (without a trauma focus) to imaginal exposure found that symptom worsening affected 10% of participants, with a significantly greater number of these being in the imaginal exposure group, however, this between-group difference was no longer present at follow-up and rates of dropout were similar from both groups [34].

The studies included in this review usually failed to provide information on adverse events and contained few explanations for dropout, so it is difficult to ascertain why participants dropped out. It must be acknowledged that symptom improvement is a possible reason for dropout [36]. It follows that termination of treatment for this reason would be highest from the most effective treatments (i.e. those with a trauma-focus [3-5]). More transparent reporting of dropout is required to explore this further. Whatever the cause, dropout is a major health and societal concern, which may result in individuals failing to receive optimal treatment [37, 38].

Strengths and limitations

The review followed Cochrane guidelines for the identification of relevant studies; data extraction; and risk assessment [23]. A wide range of psychological therapies for PTSD were considered, which included participants from different countries and backgrounds, who had been exposed to a variety of different traumatic events. Inevitably, there were some limitations. The majority of studies included in the review excluded individuals with comorbidities of substance dependence, psychosis, and severe depression, who may be more likely to drop out of treatment prematurely, as evidenced by particularly high rates of drop out from studies of participants with co-morbid alcohol dependency [39-41]. All included studies were published, resulting in the possibility of publication bias. However, a funnel plot constructed from the data did not show evidence of this being an issue.

Since there is no agreed conceptualisation of dropout, this review extracted and meta-analysed data on the number of participants that had left the study at the point of post-treatment assessment to allow the inclusion of data from a maximal number of studies. There may have been participants who completed a full course of therapy but failed to attend the post-treatment assessment. Equally, there may have been participants who failed to complete the course of treatment but attended the post-treatment assessment nonetheless. Although this may bias our findings, there are limitations to all methods that we could have adopted to conceptualise dropout.

The review relied on RCT evidence, which is both a strength and a limitation. The methodology may have excluded some potentially high quality sources of evidence, such as large observational studies and non-randomized controlled effectiveness studies [40], which could contribute to a more accurate overall assessment of dropout. It may be the case that dropout from clinical trials underestimates the true extent of dropout in routine clinical care on the basis that study teams are motivated to retain participants and often provide incentives for the completion of treatment. Equally, participants may have been more inclined to drop out on the basis of the additional demands of participation in a trial,

such as regular completion of research assessments. However, taking a broader approach would risk diluting higher quality sources of evidence with weaker ones. A major weakness was that reasons for dropout were not reported or were poorly reported by most studies and it was not possible to systematically extract and analyse this information.

Research Implications

Bringing together the available evidence on dropout has always been problematic given that there is no agreed definition and studies have conceptualised the phenomenon differently. Agreeing a definition of dropout would advance the field by encouraging the reporting of data that is comparable across trials. A previous study that compared the application of four operational definitions of dropout (therapist judgment, failure to attend the last scheduled appointment, a median-split procedure, and failure to return to therapy after the intake appointment), found that the rate ranged from 17.6% to 53.1%, depending on the definition that was used [42]. It follows that a framework to guide the standardised collection and documentation of data related to dropout including information on adverse events, is needed. There is currently no theoretical concept to guide the evaluation and reporting of dropout and adverse events that occur during psychological therapy, which is needed and would include a standardised list of reasons for dropout. A first step would be for research ethics committees to mandate that future RCTs of psychological treatments routinely collect and report standardised data on dropout, including the reasons for it. When possible, studies should also report on the severity of symptoms at the point that participants drop out from therapy and whether any adverse events occurred [17]. Systematic reviews that analyse individual patient data in relation to dropout enable the application of a standardised definition across studies and would advance the field by moving beyond looking at associations between study-level variables and dropout. Only when we have sufficient knowledge on the reasons for dropout can we be sure that patients are receiving the best possible intervention.

Clinical implications

Although we cannot be sure that the reasons for dropout are negative, the findings point to the need for careful assessment of the suitability of patients for trauma-focused work. Since there is evidence for the effect of many different modalities of psychological therapy [11-13], the evidence-base should be used to guide shared-decision making between patient and clinician [13]. Enhancing patient choice may improve retention on the basis that individuals are self-selecting treatment approaches that hold personal appeal. Whether or not this ultimately impacts retention and treatment outcomes, requires investigation. Since PTSD is a highly heterogeneous condition [43], a greater understanding of dropout has the potential to facilitate the targeted recommendation of existing evidence-based treatments to specific sub-groups of patients. Dropout is clearly a complex phenomenon, which may be best conceptualised as having a multi-faceted aetiology that is likely to vary across different therapies and diagnostic groups. A multi-factorial approach is likely to be required to reduce dropout, such as a stepped care approach that is personalised and addresses the various barriers to remaining in treatment [44]. Phased therapies have been developed with preparatory work to improve stability before trauma-focused work [45]. This approach has been found to result in improved outcomes and greater retention in trauma-focused CBT for PTSD [46]. Another option is the introduction of peer support, which has been shown to encourage participants to re-enter treatment and subsequently achieve significant clinical improvement [47].

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Participants were traumatised by military combat (27 studies), sexual assault or rape (11 studies), war/persecution (8 studies), road traffic accidents (6 studies), earthquakes (2 studies), childhood sexual abuse (7 studies), political detainment (1 study), terrorism (2 studies), physical assault (2 studies), domestic violence (4 studies), trauma from a medical diagnosis/emergency (4 studies) and crime/organised violence (4 studies). The remainder (43 studies) included individuals traumatised by a variety of different traumatic events.

Study	N	Country	Intervention 1	Intervention 2	Intervention 3	Intervention 4	Population	Trauma type	% Female	% Unemployed	% University Educated
Acarturk 2016 [48]	98	Turkey/Syria	EMDR	WL			Refugees	War/Persecution	74	Unknown	4
Adenauer 2011 [49]	34	Germany	NET (CBT-T)	WL			Refugees	War/Persecution	44	Unknown	Unknown
Ahmadi 2015 [50]	48	Iran	EMDR	REM Desensitization	WL		Military Personnel/Veterans	Military Trauma	0	Unknown	33.3
Akbarian 2015 [51]	40	Iran	Group CBT-T	MC/RA			General Population	Various	79	Unknown	Unknown
Asukai 2010 [52]	24	Japan	PE (CBT-T)	TAU			General Population	Various	88	Unknown	Unknown
Beck 2009 [53]	44	USA	Group CBT-T	MC/RA			General Population	Road Traffic Accident	82	54	Unknown
Bichescu 2007 [54]	18	Romania	NET (CBT-T)	Psychoeducation			General Population	Political detainment	94	0	72
Blanchard 2003 [55]	98	USA	CBT-T	SC	WL		General Population	Road Traffic Accident	73	Unknown	Unknown
Bradshaw 2014 [56]	10	Canada	OEI	WL			General Population	Various	70	0	Unknown
Brom 1989 [57]	83	Netherlands	CBT-T	Psychodynamic Therapy	WL		General Population	Various	79	49	Unknown
Bryant 2003 [58]	58	Australia	CBT-T	SC			General Population	Various	52	Unknown	Unknown
Bryant 2011 [59]	28	Thailand	CBT-T	SC			General Population	Terrorism	96	84%	Unknown
Buhmann 2016 [60]	138	Denmark	CBT-T	WL			Refugees	Organised Violence	41	Unknown	Unknown
Buttolo 2016 [61]	148	Germany	CPT (CBT-T)	DET			General Population	Various	66	Unknown	Unknown
Capezzani 2013 [62]	21	Italy	EMDR	CBT-T			General Population	Medical Diagnoses/Emergencies	90	Unknown	Unknown
Carletto 2016 [63]	50	Italy	EMDR	Relaxation Training			General Population	Medical Diagnoses/Emergencies	81	Unknown	Unknown

Carlson 1998 [64]	35	USA	EMDR	Relaxation Training	TAU		Military Personnel/Veterans	Military Trauma	0	62	Unknown
Castillo 2016 [65]	86	USA	Group CBT-T	WL			Military Personnel/Veterans	Military Trauma	100	44	Unknown
Chard 2005 [66]	71	USA	CPT (CBT-T)	WL			General Population	Sexual Assault or Rape	100	Unknown	Unknown
Cloitre 2002 [67]	58	USA	CBT-T	WL			General Population	Child Abuse	100	24	52
Cloitre 2010 [68]	71	USA	CBT-T	CBT without a trauma focus			General Population	Child Abuse	100	31	Unknown
Cooper 1989	16	USA	EMDR	Relaxation Therapy			Military Personnel/Veterans	Military Trauma	0	Unknown	Unknown
Deville 1998 [69]	35	Australia	EMDR	TAU			Military Personnel/Veterans	Military Trauma	0	Unknown	Unknown
Deville 1999 [70]	32	Australia	EMDR	CBT-T			General Population	Various	100	Unknown	Unknown
Dorrepaal 2012 [71]	71	Netherlands	Group Stabilising Treatment	TAU			General Population	Child Abuse	Unknown	83	Unknown
Duffy 2007 [72]	58	UK	CT (CBT-T)	WL			General Population	Various	40	Unknown	Unknown
Dunne 2012 [73]	26	Australia	CBT-T	WL			General Population	Road Traffic Accident	50	31	73
Echeburua 1997 [74]	20	Spain	CBT-T	Relaxation Training			General Population	Sexual Assault or Rape	100	Unknown	20
Ehlers 2005 [75]	28	UK	CT (CBT-T)	WL			General Population	Various	50	25	35
Ehlers 2003 [76]	57	UK	CT (CBT-T)	MC/RA			General Population	Road Traffic Accident	Unknown	Unknown	Unknown
Ehlers 2014 [77]	91	UK	CT (CBT-T)	SC	WL		General Population	Various	58	23	26
Falsetti 2008 [78]	60	USA	Group CBT-T	WL			General Population	Various	100	Unknown	Unknown
Fecteau 1999 [79]	20	Canada	CBT-T	WL			General Population	Road Traffic Accident	70	Unknown	Unknown
Feske 2008 [80]	21	USA	PE (CBT-T)	TAU			General Population	Various	100	29%	90%
Foa 1991 [81]	45	USA	PE (CBT-T)	CBT without a trauma focus	Supportive counselling	WL	General Population	Sexual Assault or Rape	100	Unknown	Unknown
Foa 1999 [82]	66	USA	PE (CBT-T)	CBT without a trauma focus	WL		General Population	Sexual Assault or Rape	100	38	41
Foa 2005 [6]	179	USA	PE (CBT-T)	WL			General Population	Assault	100	17	34

Foa 2018 [83]	256	USA	Spaced PE (CBT-T)	PCT	MC/RA		Military Personnel/Veterans	Military Trauma	12	100	66
Fonzo 2017 [84]	66	USA	PE (CBT-T)	WL			General Population	Various	65	Unknown	Unknown
Forbes 2012 [85]	59	Australia	CPT (CBT-T)	TAU			Military Personnel/Veterans	Military Trauma	4	36	Unknown
Ford 2011 [86]	146	USA	CBT without a trauma focus	PCT	WL		General Population	Various	100	Unknown	22
Ford 2013 [87]	80	USA	Group CBT-T	Group Supportive Counselling			Incarcerated Women	Various	100	Unknown	Unknown
Galovski 2012 [88]	100	USA	CPT (CBT-T)	MC/RA			General Population	Various	69	Unknown	Unknown
Gamito 2010 [89]	10	Portugal	VRE (CBT-T)	Control Exposure	WL		Military Personnel/Veterans	Military Trauma	0	Unknown	Unknown
Gersons 2000 [90]	42	Netherlands	BEP (CBT-T)	WL			General Population	Various	Unknown	Unknown	Unknown
Gray 2017 [91]	74	USA	RTM (CBT-T)	WL			Military Personnel/Veterans	Military Trauma	0	Unknown	Unknown
Hensel-Dittmann 2011 [92]	28	Germany	NET (CBT-T)	CBT without a trauma focus			Asylum Seekers	Organised Violence	Unknown	Unknown	Unknown
Hinton 2005 [93]	40	USA	CBT-T	WL			Refugees	Genocide	60	Unknown	Unknown
Hinton 2011 [94]	24	USA	Group CBT-T	WL			General Population	Various	100	Unknown	Unknown
Hogberg 2007 [95]	24	Sweden	EMDR	WL			General Population	Various	38	Unknown	Unknown
Hollifield 2007 [96]	55	USA	Group trauma-focused CBT	WL			General Population	Various	68	Unknown	40
Ironson 2002 [97]	22	USA	EMDR	PE (CBT-T)			General Population	Various	77	Unknown	Unknown
Ivarsson 2014 [98]	62	Sweden	I-CBT	WL			General Population	Various	82	8	65
Jacob 2014 [99]	76	Rwanda	NET (CBT-T)	WL			Genocide Survivors	Genocide	92	Unknown	Unknown
Jensen 1994 [100]	25	USA	EMDR	WL			Military Personnel/Veterans	Military Trauma	0	68	Unknown

Johnson 2011 [101]	70	USA	CBT without a trauma focus	TAU			General Population	Domestic Abuse	100	73	7
Johnson 2016 [102]	60	USA	CBT without a trauma focus	TAU			General Population	Domestic Abuse	100	77	5
Karatzias 2011 [103]	46	UK	EMDR	EFT			General Population	Various	57	37	47
Keane 1989 [104]	24	USA	CBT-T	WL			Military Personnel/Veterans	Military Trauma	0	Unknown	Unknown
Krupnick 2008 [105]	48	USA	Group IPT	WL			General Population	Various	100	80	13%
Kubany 2003 [106]	37	USA	CBT-T	WL			General Population	Domestic Abuse	100	Unknown	Unknown
Kubany 2004 [107]	107	USA	CBT-T	WL			General Population	Domestic Abuse	100	Unknown	Unknown
Laugharne 2016 [108]	20	Australia	EMDR	PE (CBT-T)			General Population	Various	70	Unknown	Unknown
Lee 2002 [109]	24	Australia	CBT-T	EMDR			General Population	Various	46	Unknown	Unknown
Lewis 2017 [110]	42	UK	I-CBT	WL			General Population	Various	57	19	62
Lindauer	24	Netherlands	BEP	WL			General Population	Various	54	Unknown	Unknown
Littleton 2016 [111]	87	USA	I-CBT	I- Psychoeducation			General Population	Sexual Assault or Rape	100	Unknown	Unknown
Litz 2007 [112]	45	USA	I-CBT	I-SC			Military Personnel/Veterans	Terrorism / Military Trauma	Unknown	Unknown	Unknown
Marcus 1997 [113]	67	USA	EMDR	TAU			General Population	Various	79	Unknown	Unknown
Markowitz 2015 [114]	110	USA	IPT	PE (CBT-T)	Relaxation Therapy		General Population	Various	70	21	Unknown
Marks 1998 [115]	87	UK	PE (CBT-T)	Cognitive Restructuring	PE (CBT-T) (CBT-T)(CBT-T)and Cognitive Restructuring	Relaxation without PE (CBT-T) (CBT-T)(CBT-T)or CR	General Population	Various	36	54	Unknown
McDonagh 2005 [116]	74	USA	PE (CBT-T)	PCT	WL		General Population	Sexual Assault or Rape	100	17	Unknown
McLay 2011 [117]	20	USA	VRE (CBT-T)	TAU			Military Personnel/Veterans	Military Trauma	5	Unknown	Unknown

McLay 2017 [118]	81	USA	VRE (CBT-T)	Control Exposure Therapy			Military Personnel/Veterans	Military Trauma	4	Unclear	Unclear
Monson 2012 [119]	20	USA	Couples CBT-T	WL			General Population	Various	25	40	Unknown
Monson 2006 [120]	60	USA	CPT (CBT-T)	WL			Military Personnel/Veterans	Military Trauma	10	Unknown	Unknown
Morath 2014 [121]	38	Germany	NET (CBT-T)	WL			Refugees	Organised Violence	32	Unknown	Unknown
Meuser 2008 [122]	108	USA	CBT-T	TAU			General Population	Various	79	Unknown	Unknown
Nacasch 2011 [123]	30	Israel	PE (CBT-T)	TAU			Military Personnel/Veterans	Military Trauma	Unknown	63	Unknown
Neuner 2010 [124]	32	Germany	NET (CBT-T)	TAU			Refugees	Torture	31	Unknown	Unknown
Neuner 2008 [125]	277	Uganda	NET (CBT-T)	SC	Monitoring		Refugees	War/Persecution	51	49	Unknown
Neuner 2004 [126]	43	Uganda	NET (CBT-T)	SC	Psychoeducation		Refugees	War/Persecution	60	28	Unknown
Nijdam 2012 [127]	140	Netherlands	BEP (CBT-T)	EMDR			General Population	Various	56	Unknown	30
Pacella 2012 [128]	66	USA	PE (CBT-T) (CBT-T)	MC/RA			General Population	Medical Diagnoses/Emergencies	37	Unknown	Unknown
Paunovic 2011 [129]	29	Sweden	CBT-T	WL			General Population	Various	63	74	11
Peniston 1991 [130]	29	USA	CBT-T	TAU			Military Personnel/Veterans	Military Trauma	Unknown	Unknown	Unknown
Power 2002 [131]	105	UK	EMDR	CBT-T	WL		General Population	Various	42	Unknown	Unknown
Rauch 2015 [132]	36	USA	PE (CBT-T) (CBT-T)	PCT			Military Personnel/Veterans	Military Trauma	9	Unknown	Unknown
Ready 2010 [133]	11	USA	VRE (CBT-T)	PCT			Military Personnel/Veterans	Military Trauma	Unknown	Unknown	Unknown
Reger 2016 [134]	162	USA	VRE (CBT-T)	PE (CBT-T)	WL		Military Personnel/Veterans	Military Trauma	4	Active duty	7
Resick 2015 [135]	108	USA	Group CBT-T	Group PCT			Military Personnel/Veterans	Military Trauma	8	0	8
Resick 2002 [7]	171	USA	CPT (CBT-T) (CBT-T)	PE (CBT-T)	Minimal Attention		General Population	Sexual Assault or Rape	100	Unknown	Unknown
Resick 2017 [136]	268	USA	CPT (CBT-T) (CBT-T)	Group CBT-T			Military Personnel/Veterans	Military Trauma	9	100	19

Rothbaum 1997 [137]	18	USA	EMDR	WL			General Population	Sexual Assault or Rape	100	19	43
Rothbaum 2005 [138]	60	USA	PE (CBT-T)	EMDR	WL		General Population	Sexual Assault or Rape	100	Unknown	Unknown
Sautter 2015 [139]	57	USA	Couples CBT without a trauma focus	Couples Psychoeducation			Military Personnel/Veterans	Military Trauma	1.75	12	75
Scheck 1998 [140]	60	USA	EMDR	SC			General Population	Various	100	Unknown	Unknown
Schnurr 2003 [141]	360	USA	Group CBT-T	Group PCT			Military Personnel/Veterans	Military Trauma	0	51	Unknown
Schnurr 2007 [142]	284	USA	PE (CBT-T) (CBT-T)	Group PCT			Military Personnel/Veterans	Military Trauma	100	38	Unknown
Schnyder 2011 [143]	30	Switzerland	BEP (CBT-T)	MC/RA			General Population	Various	46.7	Unknown	Unknown
Shemesh	60	USA	CBT-T	Psychoeducation			General Population	Medical Diagnoses/Emergencies	33	Unknown	Unknown
Sloan 2012 [144]	46	USA	WET	WL			General Population	Road Traffic Accident	Unclear	78	41
Sloan 2018 [145]	126	USA	WET	CPT (CBT-T)			General Population	Various	49	Unknown	13
Spence 2011 [146]	42	Australia	I-CBT	WL			General Population	Various	81	41	Not Clear
Stenmark 2013 [147]	81	Norway	NET (CBT-T)	TAU			Refugees	Various	31	Unknown	25
Suris 2013 [148]	86	USA	CPT (CBT-T)	PCT			Military Personnel/Veterans	Sexual Assault or Rape	85	43	16
Taylor 2003 [149]	60	USA	PE (CBT-T)	Relaxation Therapy	EMDR		General Population	Various	75	13	Unknown
Tylee 2017 [150]	30	USA	RTM (CBT-T)	WL			General Population	Military Trauma	0	Unknown	Unknown
Vaughan 1994 [151]	36	Australia	CBT-T	Relaxation Training	EMDR		General Population	Various	64	Unknown	Unknown
Wells 2015 [152]	32	UK	PE (CBT-T)	CBT without a trauma focus	WL		General Population	Various	38	6	Unknown
Wells 2012 [153]	20	UK	CBT without a trauma focus	WL			General Population	Various	55	Unknown	Unknown
Yehuda 2014 [154]	52	USA	PE (CBT-T)	MC/RA			Military Personnel/Veterans	Military Trauma	Unclear	Unknown	Unknown

Zang 2014 [155]	20	China	NET (CBT-T)	WL			General Population	Earthquake	90	Unknown	Unknown
Zang 2013 [156]	22	China	NET (CBT-T)	WL			General Population	Earthquake	77	Unknown	Unknown
Zlotnick 1997 [157]	48	USA	Group CBT-T	WL			General Population	Sexual Assault or Rape	100	Unknown	33

BEP = Brief Eclectic Psychotherapy

CBT = Cognitive Behavioural Therapy

CBT-T = Cognitive Behavioural Therapy with a Trauma focus

CPT = Cognitive Processing Therapy

CR = Cognitive Restructuring

CT = Cognitive Therapy

DET = Dialogical Exposure Therapy

EFT = Emotional Freedom Technique

EMDR = Eye Movement Desensitisation and Reprocessing

I-CBT = Internet-based Cognitive Behavioural Therapy

I-Psychoeducation = Internet based Psychoeducation

IPT = Interpersonal Psychotherapy

I-SC = Internet based Supportive Counselling

MC/RA = Medical Checks/Repeated Assessments

NET = Narrative Exposure Therapy

OEI = Observed and Experimental Integration

PCT = Present Centred Therapy

PE = Prolonged Exposure

REM Desensitization = Rapid Eye Movement Desensitization

RTM = Reconsolidation of Traumatic Memories

SC = Supportive Counselling

TAU = Treatment as Usual

VRE = Virtual Reality Exposure

WET = Written Emotion Therapy

WL = Waiting List

Table 1: Characteristics of Included Studies

	Random sequence generation	Allocation concealment	Incomplete outcome data assessment	Blinding of outcome	Selective reporting	Other sources of bias	Total no. high risk
Acarturk 2016	Low	Low	Low	Low	Low	Low	0
Adenauer 2011	Low	Low	Low	Low	High	High	2
Ahmadi 2015	Unclear	Unclear	High	Unclear	Unclear	High	2
Akbarian 2015	Low	High	Low	Low	Unclear	High	2
Asukai 2010	Low	Low	Low	Low	Unclear	High	1
Beck 2009	Unclear	Unclear	High	Low	Unclear	High	2
Bichescu 2007	High	Unclear	Low	Low	Unclear	High	2
Blanchard 2003	High	Unclear	Low	Low	Unclear	Low	1
Bradshaw 2014	Unclear	Unclear	Low	High	Unclear	High	2
Brom 1989	Unclear	Unclear	High	Unclear	Unclear	High	2
Bryant 2003	Low	Unclear	Low	Low	Low	High	1
Bryant 2011	Low	Low	Low	Low	Unclear	High	1
Buhmann 2016	Low	Low	Unclear	Low	Low	Low	0
Buttolo 2016	Unclear	Unclear	Low	Low	Unclear	High	1
Capezzani 2013	Unclear	Unclear	Low	Low	Unclear	High	1
Carletto 2016	Low	Low	High	Low	Low	Low	1
Carlson 1998	Unclear	Unclear	High	Unclear	Unclear	Low	1
Castillo 2016	Unclear	Unclear	Low	Low	Unclear	High	1
Chard 2005	Unclear	Unclear	Low	Low	Unclear	High	1
Cloitre 2002	Unclear	Unclear	Low	Low	High	Low	1

Cloitre 2010	Unclear	Low	Low	Low	Low	Low	0
Cooper 1989	High	High	High	Unclear	Low	High	4
Devilly 1998	Unclear	Unclear	High	Low	Unclear	Low	1
Devilly 1999	High	Unclear	High	Unclear	Unclear	High	3
Dorrepaal 2012	Unclear	Low	Low	Low	High	High	2
Duffy 2007	Low	Low	Low	Unclear	Low	High	1
Dunne 2012	Unclear	Unclear	Low	Unclear	Unclear	High	1
Echeburua1997	Unclear	Unclear	Low	Unclear	Unclear	High	1
Ehlers 2003	Low	Low	High	Low	Unclear	High	2
Ehlers 2005	Unclear	Unclear	Low	Low	Unclear	High	2
Ehlers 2014	Unclear	Low	Low	Low	Low	Low	0
Falsetti 2008	Unclear	Unclear	Low	Low	High	High	2
Fecteau 1999	Low	Unclear	High	Unclear	Unclear	High	2
Feske 2008	Unclear	Unclear	Low	Unclear	Unclear	High	1
Foa 1991	Unclear	Unclear	High	Low	Unclear	High	2
Foa 1999	Unclear	Unclear	Low	Low	Unclear	High	1
Foa 2005	Low	Low	Low	Low	Unclear	Low	0
Foa 2018	Low	Low	Low	Low	Low	Low	0
Fonzo 2017	Low	Unclear	Low	Unclear	Low	Low	0
Forbes 2012	Unclear	Low	Low	Unclear	Unclear	High	1
Ford 2011	Low	Low	Low	Low	Unclear	High	1
Ford 2013	Low	Low	High	Low	Unclear	High	2
Galovski 2012	Unclear	Unclear	Low	Low	Unclear	Low	0
Gamito 2010	Unclear	Unclear	Unclear	Unclear	High	High	2
Gersons 2000	Unclear	Unclear	Low	Low	Unclear	Low	0
Gray 2017	Low	Low	Unclear	Unclear	Unclear	Unclear	0
Hensel-Dittmann 2011	Low	Low	Low	Low	Unclear	Low	0

Hinton 2005	Low	Unclear	Low	Low	Unclear	High	1
Hinton 2011	Unclear	Unclear	Low	Unclear	Unclear	High	1
Hogberg 2007	Low	Unclear	High	Low	Unclear	High	2
Hollifield 2007	Low	Low	Low	Low	Unclear	High	1
Ironson 2002	Unclear	Unclear	Low	High	Unclear	High	2
Ivarsson 2014	Low	Unclear	Low	Low	Low	High	1
Jacob 2014	Low	Low	Low	Low	Unclear	High	1
Jensen 1994	Unclear	Unclear	High	Unclear	Unclear	High	2
Johnson 2011	Low	Unclear	Low	High	Unclear	Low	1
Johnson 2016	Low	Low	Low	Low	Unclear	Low	0
Karatzias 2011	Low	Low	Low	Low	Unclear	High	1
Keane 1989	Unclear	Unclear	Unclear	High	Unclear	High	2
Krupnick 2008	Unclear	Unclear	Low	Unclear	Unclear	High	1
Kubany 2003	Unclear	Unclear	Low	Low	Unclear	High	1
Kubany 2004	Unclear	Unclear	Low	Low	Low	High	1
Laugharne 2016	Low	Low	Low	Low	Unclear	High	1
Lee 2002	Unclear	Unclear	Low	Low	Unclear	High	1
Lewis 2017	Low	Low	Low	Low	Low	High	1
Lindauer 2005	Low	Low	Low	Low	Low	High	
Littleton 2016	Low	Unclear	Low	High	Low	Low	1
Litz 2007	Unclear	Unclear	High	Low	Low	High	2
Marcus 1997	Unclear	Unclear	Unclear	High	Unclear	High	2
Markowitz 2015	Low	Low	Low	Low	Low	High	1
Marks 1998	Unclear	Unclear	Low	Low	Unclear	Low	0
McDonagh 2005	Unclear	Unclear	Low	Low	Unclear	Low	0
McLay 2011	Low	Low	Unclear	High	Unclear	High	2
McLay 2017	Low	Unclear	Low	Low	Low	Low	0
Monson 2012	Low	Low	Low	Low	Low	Low	0

Monson 2006	Low	Low	Low	Low	Unclear	Low	0
Morath 2014	Low	Low	Unclear	Low	Low	Low	0
Meuser 2008	Low	Low	Low	Low	Unclear	High	1
Nacasch 2011	Low	Unclear	Low	Low	Low	High	1
Neuner 2004	Low	Unclear	Low	Low	Low	High	1
Neuner 2008	Unclear	Unclear	Low	Low	Unclear	Low	0
Neuner 2010	Unclear	Unclear	Low	Low	Unclear	High	1
Nijdam 2012	Unclear	Low	Low	Low	Low	Low	0
Pacella 2015	Low	Unclear	Low	Low	Unclear	Low	0
Paunovic 2011	Unclear	Unclear	Low	High	Unclear	High	2
Power 2002	Low	Low	High	Low	Unclear	Low	1
Rauch 2015	Unclear	Unclear	Low	Low	Unclear	High	1
Ready 2010	Unclear	Unclear	Unclear	Low	Unclear	High	1
Reger 2016	Low	Low	Low	Low	Unclear	Low	0
Resick 2002	Unclear	Unclear	Low	Low	Unclear	High	1
Resick 2015	Unclear	Unclear	Low	Low	Unclear	Low	0
Resick 2017	Low	Unclear	Low	Low	Low	Low	0
Rothbaum 1997	Unclear	Unclear	High	Low	Unclear	High	2
Rothbaum 2005	Unclear	Unclear	High	Low	Unclear	Low	1
Sautter 2015	Unclear	Unclear	Low	Low	Unclear	Low	0
Scheck 1998	Low	Low	High	Unclear	Unclear	High	2
Schnurr 2003	High	Unclear	Low	Low	Low	Low	1
Schnurr 2007	Low	Low	Low	Low	Low	Low	0
Shemesh	Low	Low	Unclear	Unclear	Unclear	Low	0
Sloan 2012	Low	Low	Unclear	Low	Unclear	Low	0
Sloan 2018	Low	Low	Low	Low	Low	Low	0
Spence 2011a	Low	Unclear	High	High	Low	Unclear	2
Stenmark 2013	Unclear	Unclear	Low	High	Low	High	2

Suris 2013	Unclear	Unclear	Low	Low	Low	High	1
Taylor 2003	Unclear	Unclear	Low	Low	Unclear	Low	0
Tylee 2017	Unclear	Unclear	Unclear	Low	Unclear	High	1
Vaughan 1994	Unclear	Unclear	Low	Low	Unclear	Low	0
Wells 2012	Low	Low	Low	Low	Unclear	High	1
Wells 2015	Low	Low	High	High	Unclear	High	3
Yehuda 2014	Unclear	Unclear	High	Unclear	Unclear	Unclear	1
Zang 2013	Unclear	Unclear	Low	Low	Low	High	1
Zang 2014	Low	Unclear	Low	Low	Low	High	1
Zlotnick 1997	Unclear	Unclear	High	Low	Low	High	2

Table 2: Risk of bias assessments of the included studies

	Number of studies	Mean % drop out (95% CI)	I ² (%)
1. CBT-T (not based on a specific model)	25	13 (9-18)	64.41
2. Brief Eclectic Psychotherapy	3	17 (0-51)	90.40
3. Cognitive Processing Therapy (CPT)	8	30 (22-39)	75.15
4. Cognitive Therapy (CT)	6	9 (1-23)	82.72
5. Narrative Exposure Therapy	11	12 (3-26)	85.59
6. Prolonged Exposure (PE)	22	22 (16-28)	72.56
7. Reconsolidation of Traumatic Memories (RTM);	1	1 (0-8)	0.00
8. Virtual Reality Exposure (VRE)	5	18 (3-38)	76.32
9. Eye Movement Desensitisation and Reprocessing (EMDR)	21	18 (12-24)	62.13
10. CBT without a trauma focus	9	14 (7-23)	61.96
11. Present Centred Therapy (PCT)	6	20 (13-28)	40.85
12. Supportive Counselling	9	15 (3-32)	87.84
13. Observed and Experiential Integration (OEI)	1	0	Not applicable
14. Interpersonal Psychotherapy (IPT)	1	15 (6-30)	Not applicable
15. Psychodynamic Psychotherapy	1	14	Not applicable
16. REM Desensitization	1	38	Not applicable
17. Emotional Freedom Technique (EFT)	1	39	Not applicable
18. Dialogical Exposure Therapy (DET)	1	12	Not applicable
19. Internet-based CBT	3	16 (8-26)	32.12
20. Relaxation Training	8	10 (3-19)	56.80
21. Group CBT with a Trauma Focus (group CBT-T)	9	24 (16-33)	76.29
22. Group Present Centred Therapy (PCT)	3	14 (11-18)	0.00
23. Group and Individual CBT-T	1	22	Not applicable
24. Group Stabilizing Treatment	1	18	Not applicable
25. Group Interpersonal Psychotherapy	1	38	Not applicable

26. Group Supportive Counselling	1	3	Not applicable
27. Couples CBT-T	2	22 (11-36)	0.00
28. Psychoeducation	3	1 (0-7)	0.00
29. Couples Psychoeducation	3	12 (3-25)	64.00
30. Internet-based psychoeducation	1	7	Not applicable
31. Waitlist	53	11 (8-15)	65.43
32. Treatment usual	14	13 (7-19)	61.37
33. Minimal attention/symptom monitoring	8	13 (2-32)	92.30

Table 3: Results of the meta-analyses of dropout

Variable	β (95% confidence intervals)	P
Trauma focus	0.069 (0.011-0.127)	0.021
Recruitment from clinical services	-0.028 (-0.087 – 0.030)	0.341
Delivered in a group format	-0.022 (-0.096 – 0.523)	0.564
Sample drawn from military population	0.032 (-0.023 – 0.087)	0.251
Sexual trauma	0.040 (-0.049 – 0.130)	0.376
% Female	0.040 (-0.049 – 0.130)	0.376
% University Educated	0.001 (-0.003 – 0.001)	0.208

Table 4: Meta-regression of study-level variables on dropout from all active psychological therapies

Trauma-focus coded as 0 = non-trauma focused, 1 = trauma focused; recruitment method coded as 0 = not recruited from clinical services, 1 = recruited from clinical services; delivered in a group format coded as 0 = not delivered in a group format, 1 = not delivered in a group format; sample drawn from military population coded 0 = not from a military population; 1 = from a military population; sexual trauma coded 0 = not a sexual trauma; 1 = a sexual trauma.

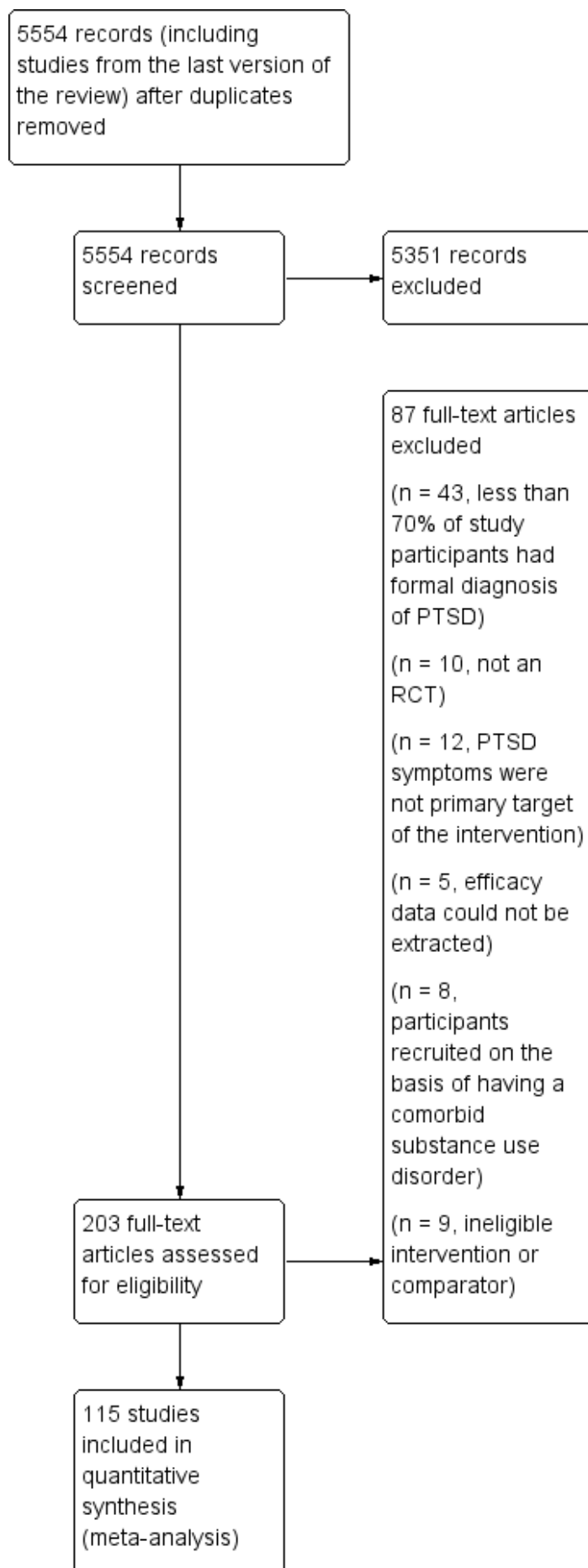


Figure 1: Study flow diagram

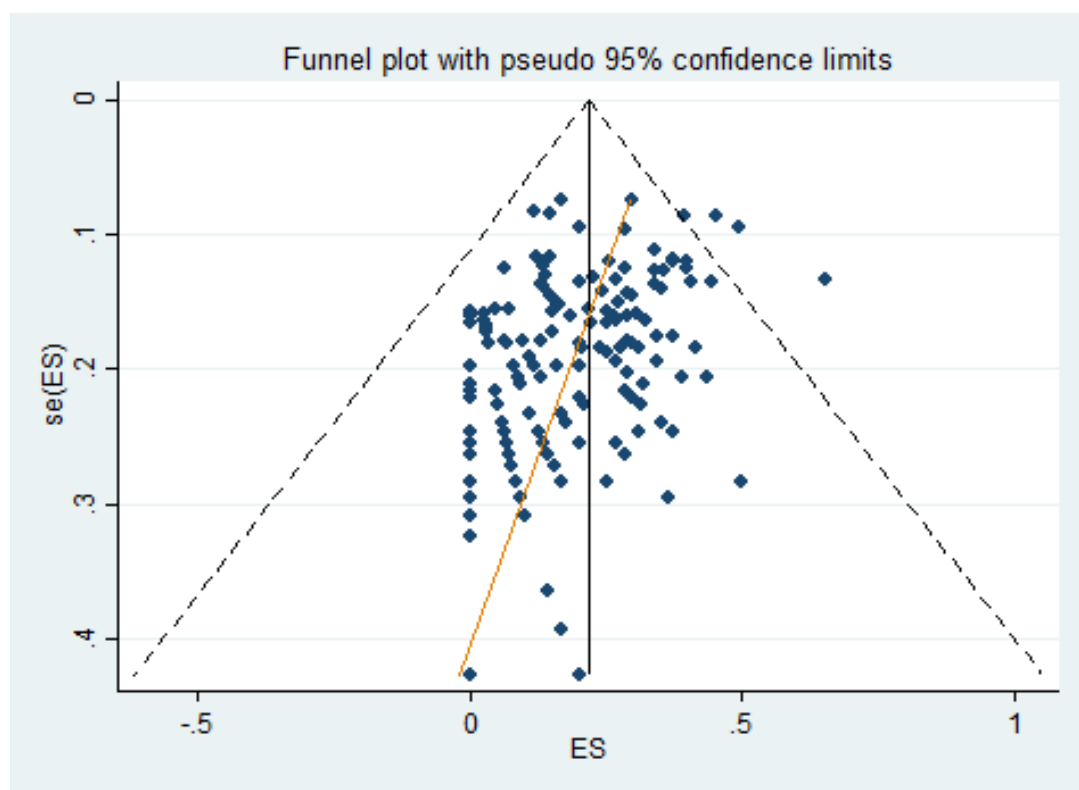


Figure 2: Funnel plot